

Brief Overview:

The students will estimate retail prices of chosen consumer products and compare their estimates with actual costs of the item.

Link to Standards:

Problem Solving Students will use statistical methods to interpret consumer

data.

 Communication Students will discuss possible prices and agree on an

estimate. Worksheets also engage students in writing

about what they are learning.

Reasoning Students will employ logical mathematical procedures and

conclusions will be followed with emphasis placed on

inductive reasoning techniques.

Students will analyze graphic points relative to line of Number Relationships

best fit and draw conclusions based on residuals.

 Statistics Students will use collected data to make logical inferences

and create mathematical models.

Grade/Level:

Grades 9-12 (Algebra I, Algebra II)

Duration/Length:

This activity will take 3 or 4 hours of class time. The lesson may take longer if the extensions are explored.

Prerequisite Knowledge:

Students should have working knowledge of the following:

- Cartesian coordinate graphing
- Basic linear graphing (y=mx+b)
- TI-82 statistics mode operations
- Consumer skills
- How to search the Internet

Objectives:

Students will:

- work cooperatively in groups.
- collect and organize data from resources.
- use inductive reasoning to formulate equations and conclusions.
- draw inference from statistical model and give appropriate support for their answer.

Materials/Resources/Printed Materials:

- Graph paper and overhead transparency
- Pencils
- Products
- TI-82 Calculator and Viewscreen
- Student worksheets:

Price is Right Worksheet (Algebra I and Algebra II classes) Comparison Worksheet (Algebra I classes only).

Development/Procedures:

Class #1 - Algebra I and Algebra II

- 1. Group students in homogeneous pairs.
- 2. Display any 10 items.
- 3. Complete Price is Right Worksheet.

Class # 2 - Algebra I

- 4. Display 5 items that are the same type of products, but different brand names. (i.e., Paul Mitchell shampoo, Pantene shampoo, Flex shampoo, Suave shampoo, generic shampoo)
- 5. Complete Part 1 of the Comparison Worksheet.
- 6. Display 3 items that are same brand, but purchased at different stores (i.e., Duracell batteries bought at Dollar Store, Walmart, and Radio Shack at the mall).
- 7. Complete Part 2 and Part 3 of the Comparison Worksheet.

Class # 2 - Algebra II

- 4. Calculate and graph linear regression line using TI-82.
- 5. Calculate and graph residuals on TI-82
- 6. Total residual values → smallest sum wins !!
- 7. Complete Parts 2 & 3 on comparison worksheet.

Evaluation:

Successful completion of worksheets and individual participation.

Extension/Follow Up:

- 1. Play a simulated "The Price is Right" game.
- 2. Access the Internet for Consumer Reports.
- 3. Create personal narrative describing an individual consumer experience.
- 4. Plan a field trip to investigate best prices at a local shopping center.

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THE PRICE IS RIGHT WORKSHEET

I. In the table below, list 10 items. After each item, write how much you think it costs.

Item	Estimated Cost	Actual Cost	Difference
	Sun	of Differences	

- **II.** How well are you able to estimate the cost of these items? Make a scatter plot with your estimated cost on the x-axis and your actual cost on the y-axis.
- **III.** Where will the points lie if all your estimates are correct? Draw that line and write the equation in slope-intercept form.
- **IV**. What does it mean if a point is above the line? Below the line? Are you an over estimator or an under estimator?
- **V**. Look at the scatter plots other students have drawn. Decide who is the best estimator and justify your choice.
- **VI.** Calculate the absolute value difference, estimated cost minus actual cost. Write these numbers in the last column and find the sum. The student with the lowest sum is the best cost estimator.

COMPARISON WORKSHEET

Part 1: Consider these five items that are the same type of product but different brand names.

Brand	Unit Cost
1	
2	
3	
4	
5	
	Range
Using data from the table above, create a Part 2: Consider these three items tha stores.	a line graph on the TI-82. It are identical, but purchased at different
Store Name	Unit Cost
1	
2	
3	
	Range

Using data from the table above, create a histogram using the TI-82.

Part 3: Based on the comparisons in Part 1 and 2, explain the difference in prices. Write a one page summary justifying your opinions.